Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A biocompatible implant for surgical implantation comprising:

a matrix comprising a ~~resorbable~~ substrate composition selected from the group consisting of polybutyleneterephthalate and polyethyletherketone, the matrix having a pore size of between about 150 to about 400 μm and a porosity of between about 50% to about 60% by volume, the pore size and porosity effective for enhancing bone growth adjacent the composition,

wherein the implant provides mechanical load-bearing support for natural bone structure for a ~~predetermined~~ period of time to allow the natural bone structure to grow adjacent the material.

2. (Currently Amended) The implant of claim 1 wherein the natural bone structure substantially replaces the implant after ~~a predetermined~~ the period of time.

3. (Canceled)

4. (Currently Amended) The implant of claim [[3]] 1 wherein the implant also includes a growth-enhancing composition for stimulating new tissue growth at the site of implantation.

5. (Currently Amended) The implant of claim 4 wherein the ~~resorbable~~ substrate composition degrades upon implantation at a first rate to provide load-bearing support for a ~~predetermined~~ period of time and the growth-enhancing composition degrades upon implantation at a second rate faster than the first rate to stimulate new tissue growth on the implant.

6. (Original) The implant of claim 4 wherein the growth-enhancing composition includes a biocompatible polymer-ceramic composition and a calcium source.

7. (Original) The implant of claim 6, wherein the growth-enhancing composition further comprises one or more transforming growth factors.

8. (Previously presented) The implant of claim 6 wherein the polymer of the polymer-ceramic composition is selected from the group consisting of polycaprolactone, copolymers of polylactic acid and-polyglycolic acid, linear aliphatic polyesters, and blends thereof.

9. (Withdrawn) The implant of claim 4 wherein the growth-enhancing composition is blended with the resorbable composition.

10. (Withdrawn) The implant of claim 6 wherein the calcium source is calcium sulfate in fibrous form and wherein the calcium source is blended into the resorbable composition.

11. (Currently Amended) A biomedical implant comprising:

a porous structure formed from a thermoplastic material selected from the group consisting of polybutyleneterephthalate, [[and]] polyethyletherketone, and combinations thereof, the porous structure having a porosity between about 25% to about 70% by volume and a pore size between about 100 to about 2400 μm, the porous structure providing load-bearing support for natural bone structure for a ~~predetermined~~ period of time; and

a composition for enhancing the rate of bone growth, wherein the composition includes a polymer material selected from the group consisting of polylactic acid, polyglycolic acid, polylactic acid-polyglycolic acid copolymer, polycaprolactone, and combinations thereof, and coats at least a portion of the structure or fills at least a portion of the pores of the structure.

12. (Currently Amended) The implant of claim 11 wherein the thermoplastic material ~~is a resorbable material that~~ degrades at a first rate to provide load-bearing support for a ~~predetermined~~ period of time and the composition for enhancing the rate of bone growth degrades at a second rate faster than the first rate to stimulate initial tissue growth on the implant.

13. (Original) The biomedical implant of claim 11 wherein the structure has a porosity between about 50% to 60% by volume and a pore size between about 150 to about 400 μm.

14. (Canceled)

15. (Previously presented) The biomedical implant of claim 11 wherein the composition for enhancing the rate of bone growth includes a calcium source.

16-24. (Cancelled)

25. (Currently amended) A method of repairing or replacing tissue comprising the steps of:

forming a biocompatible substrate including a polymer composite selected from the group consisting of polybutyleneterephthalate, [[and]] polyethyletherketone, and combinations thereof, and a growth-enhancing composition including a polymer material selected from the group consisting of polylactic acid, polyglycolic acid, polylactic acid-polyglycolic acid copolymer, polycaprolactone, and combinations thereof, wherein the biocompatible substrate has a porosity between about 25% to about 70% by volume and a pore size between about 100 to about 2400 μm, the porosity being effective for enhancing new growth of bone and tissue; and

surgically implanting the biocompatible substrate in vivo at a desired site of repair to provide a foundation for new bone and tissue growth and load-bearing support during growth of new bone and tissue.

26. (Currently Amended) The method of claim 25 wherein the biocompatible substrate ~~is a resorbable material that~~ degrades at a first rate to provide load-bearing support for a ~~predetermined~~ period of time and the growth-enhancing composition degrades at a second rate faster than the first rate to stimulate initial tissue growth on the substrate.

27. (Previously presented) The implant of claim 4 wherein the growth-enhancing composition is a coating over at least a portion of the matrix.

28. (Currently Amended) The ~~implant~~ method of claim 25 wherein the growth-enhancing composition provides a coating over at least a portion of the biocompatible substrate.

29. (New) A biomedical implant comprising:

a porous structure formed from a material comprising polybutyleneterephthalate, the porous structure having a porosity between about 25% to about 70% by volume and a

pore size between about 100 to about 2400 μm, the porous structure providing load-bearing support for natural bone structure for a period of time; and

a composition for enhancing the rate of bone growth, wherein the composition comprises a biocompatible polymer material and a calcium source, and the composition coats at least a portion of the structure or fills at least a portion of the pores of the structure.

30. (New) The biomedical implant of claim 29, wherein the polymer material is selected from the group consisting of polylactic acid, polyglycolic acid, polylactic acid-polyglycolic acid copolymer, polycaprolactone, and combinations thereof.

31. (New) The biomedical implant of claim 29, wherein the calcium source is selected from the group consisting of calcium phosphates and calcium sulfates.

32. (New) The biomedical implant of claim 29, wherein the composition for enhancing the rate of bone growth both coats at least a portion of the structure and fills at least a portion of the pores of the structure.

33. (New) The biomedical implant of claim 29, wherein the polymer material comprises polycaprolactone.

34. (New) A biomedical implant comprising:

a porous structure formed from a material comprising polyethyletherketone, the porous structure having a porosity between about 25% to about 70% by volume and a pore size between about 100 to about 2400 μm, the porous structure providing load-bearing support for natural bone structure for a period of time; and

a composition for enhancing the rate of bone growth, wherein the composition comprises a biocompatible polymer material and a calcium source, and the composition coats at least a portion of the structure or fills at least a portion of the pores of the structure.

35. (New) The biomedical implant of claim 34, wherein the polymer material is selected from the group consisting of polylactic acid, polyglycolic acid, polylactic acid-polyglycolic acid copolymer, polycaprolactone, and combinations thereof.

36. (New) The biomedical implant of claim 34, wherein the calcium source is selected from the group consisting of calcium phosphates and calcium sulfates.

37. (New) The biomedical implant of claim 34, wherein the composition for enhancing the rate of bone growth both coats at least a portion of the structure and fills at least a portion of the pores of the structure.

38. (New) The biomedical implant of claim 34, wherein the polymer material comprises polycaprolactone.